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Orientation to Computing-I

L T P : 2 0 0

Unit-6 (Version Control)

- Overview of Git and Github
- Install git and Create a GitHub account
- Create a local git repository
- Add a new file to the repository
- Creating a commit
- Creation of a new branch
- Git Commands

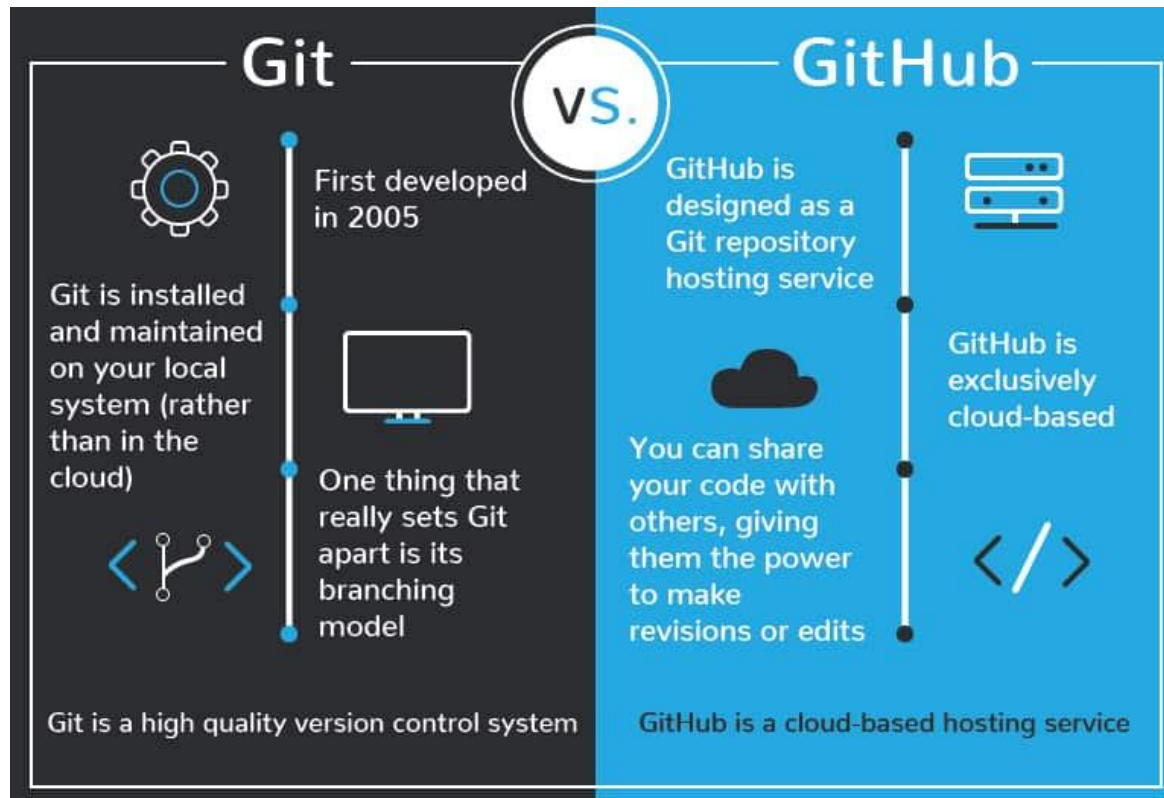
What is Git and GitHub?

Git: Git is a distributed version control system for tracking changes in source code during software development. It is designed for coordinating work among programmers, but it can be used to track changes in any set of files. Its goals include speed, data integrity, and support for distributed, non-linear workflows.

GitHub: GitHub is a web-based Git repository hosting service, which offers all of the distributed revision control and source code management (SCM) functionality of Git as well as adding its own features.



Diff. between Git and GitHub?



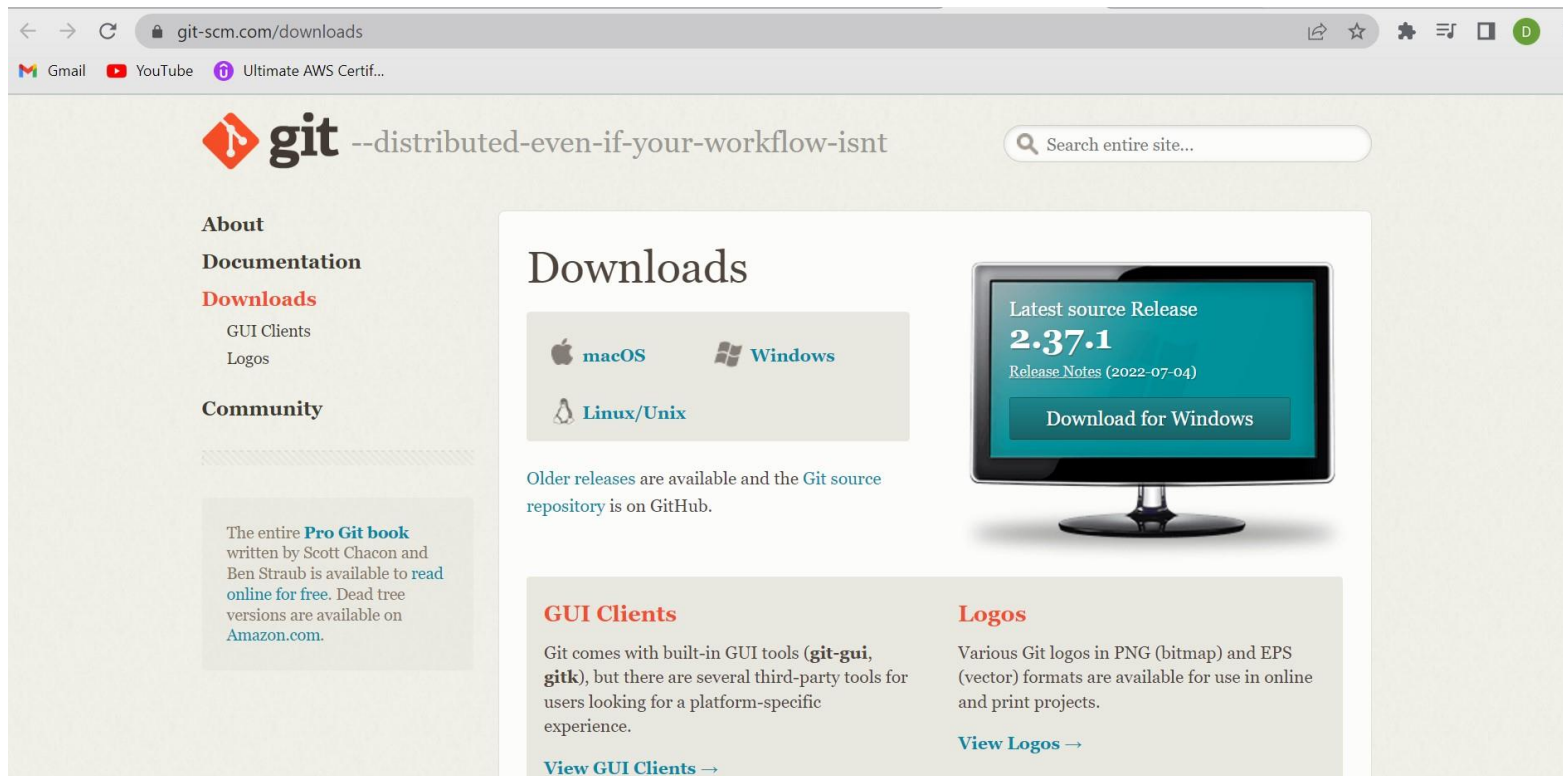
Diff. between Git and GitHub?

Git vs. GitHub comparison	
GIT	GITHUB
Installed locally	Hosted in the cloud
First released in 2005	Company launched in 2008
Maintained by The Linux Foundation	Purchased in 2018 by Microsoft
Focused on version control and code sharing	Focused on centralized source code hosting
Primarily a command-line tool	Administered through the web
Provides a desktop interface named Git Gui	Desktop interface named GitHub Desktop
No user management features	Built-in user management
Minimal external tool configuration features	Active marketplace for tool integration
Competes with Mercurial, Subversion, IBM, Rational Team Concert and ClearCase	Competes with Atlassian Bitbucket and GitLab
Open source licensed	Includes a free tier and pay-for-use tiers

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Install Git

<https://git-scm.com/downloads>

A screenshot of the Git website's download page. The browser address bar shows 'git-scm.com/downloads'. The page features the Git logo and tagline '--distributed-even-if-your-workflow-isnt'. A left sidebar contains links for 'About', 'Documentation', 'Downloads' (highlighted), 'GUI Clients', 'Logos', and 'Community'. The main content area is titled 'Downloads' and includes a section for the 'Latest source Release 2.37.1' with a 'Download for Windows' button. Below this, there are sections for 'GUI Clients' and 'Logos'. A monitor icon displays the release information. The footer of the page is orange with the university's website and name.

← → ↻ git-scm.com/downloads

Gmail YouTube Ultimate AWS Certif...

 **git** --distributed-even-if-your-workflow-isnt

Search entire site...

About
Documentation
Downloads
GUI Clients
Logos
Community

The entire **Pro Git book** written by Scott Chacon and Ben Straub is available to [read online for free](#). Dead tree versions are available on [Amazon.com](#).

Downloads

Older releases are available and the [Git source repository](#) is on GitHub.

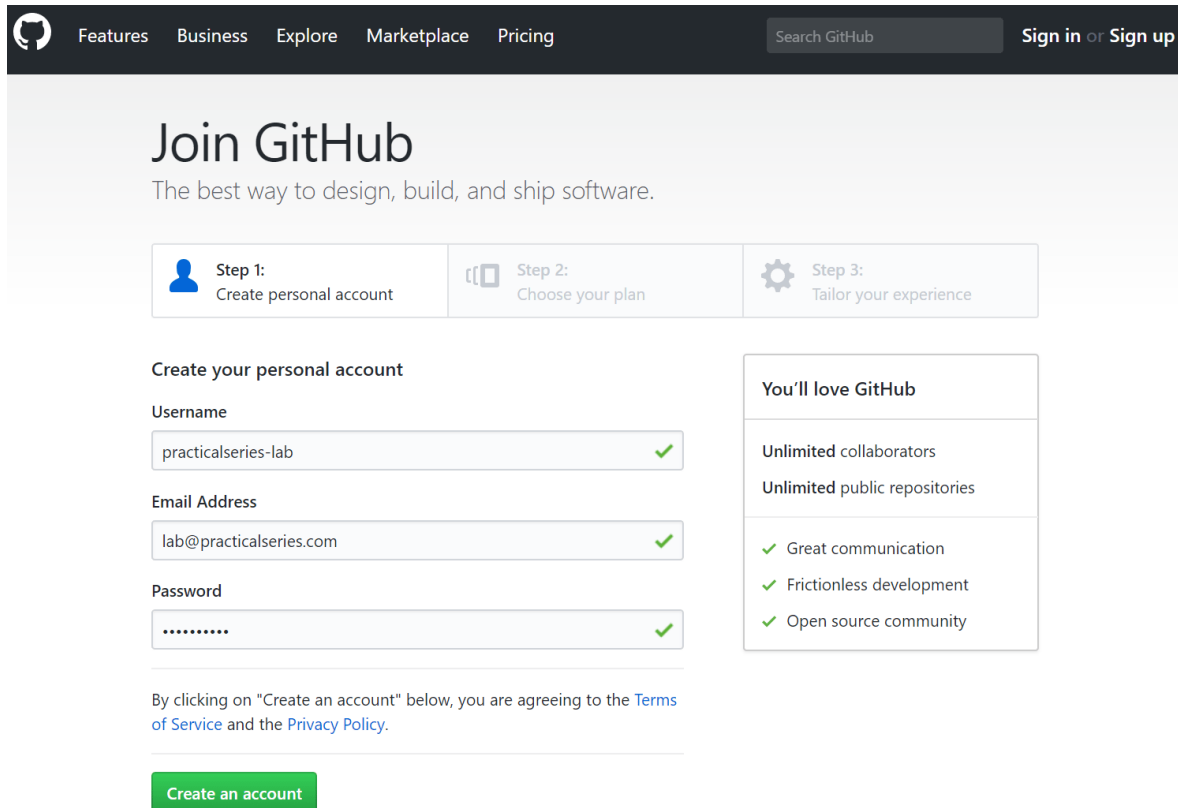
Latest source Release
2.37.1
[Release Notes \(2022-07-04\)](#)
[Download for Windows](#)

GUI Clients
Git comes with built-in GUI tools (**git-gui**, **gitk**), but there are several third-party tools for users looking for a platform-specific experience.
[View GUI Clients →](#)

Logos
Various Git logos in PNG (bitmap) and EPS (vector) formats are available for use in online and print projects.
[View Logos →](#)

Create GitHub Account

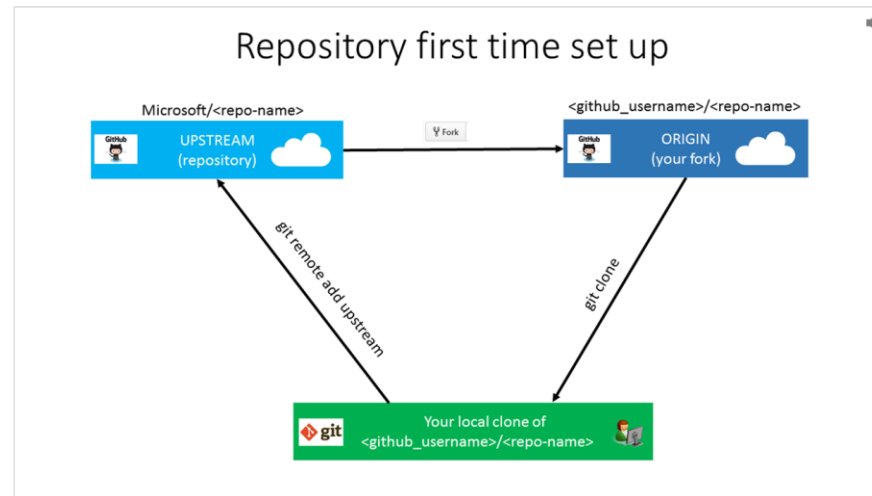
<https://github.com/>

A screenshot of the GitHub 'Join GitHub' page. The page has a dark header with navigation links: Features, Business, Explore, Marketplace, Pricing, a search bar, and 'Sign in or Sign up'. The main content area is light gray and titled 'Join GitHub' with the tagline 'The best way to design, build, and ship software.' Below this is a three-step process bar: Step 1 (Create personal account), Step 2 (Choose your plan), and Step 3 (Tailor your experience). The 'Create your personal account' section is active, showing input fields for Username (practicalseries-lab), Email Address (lab@practicalseries.com), and Password (masked with dots), each with a green checkmark. To the right, a box titled 'You'll love GitHub' lists benefits: Unlimited collaborators, Unlimited public repositories, Great communication, Frictionless development, and Open source community, all with green checkmarks. At the bottom, a green button says 'Create an account'.

Create a local git repository

Start a new git repository

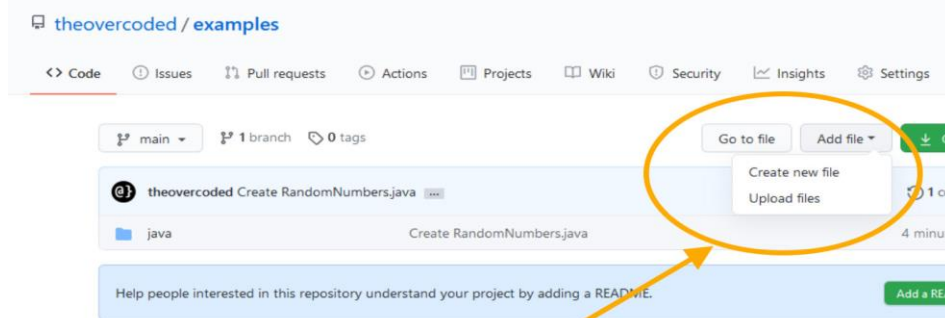
- Create a directory to contain the project.
- Go into the new directory.
- Type git init .
- Write some code.
- Type git add to add the files (see the typical use page).
- Type git commit .



Add a new file to the repository

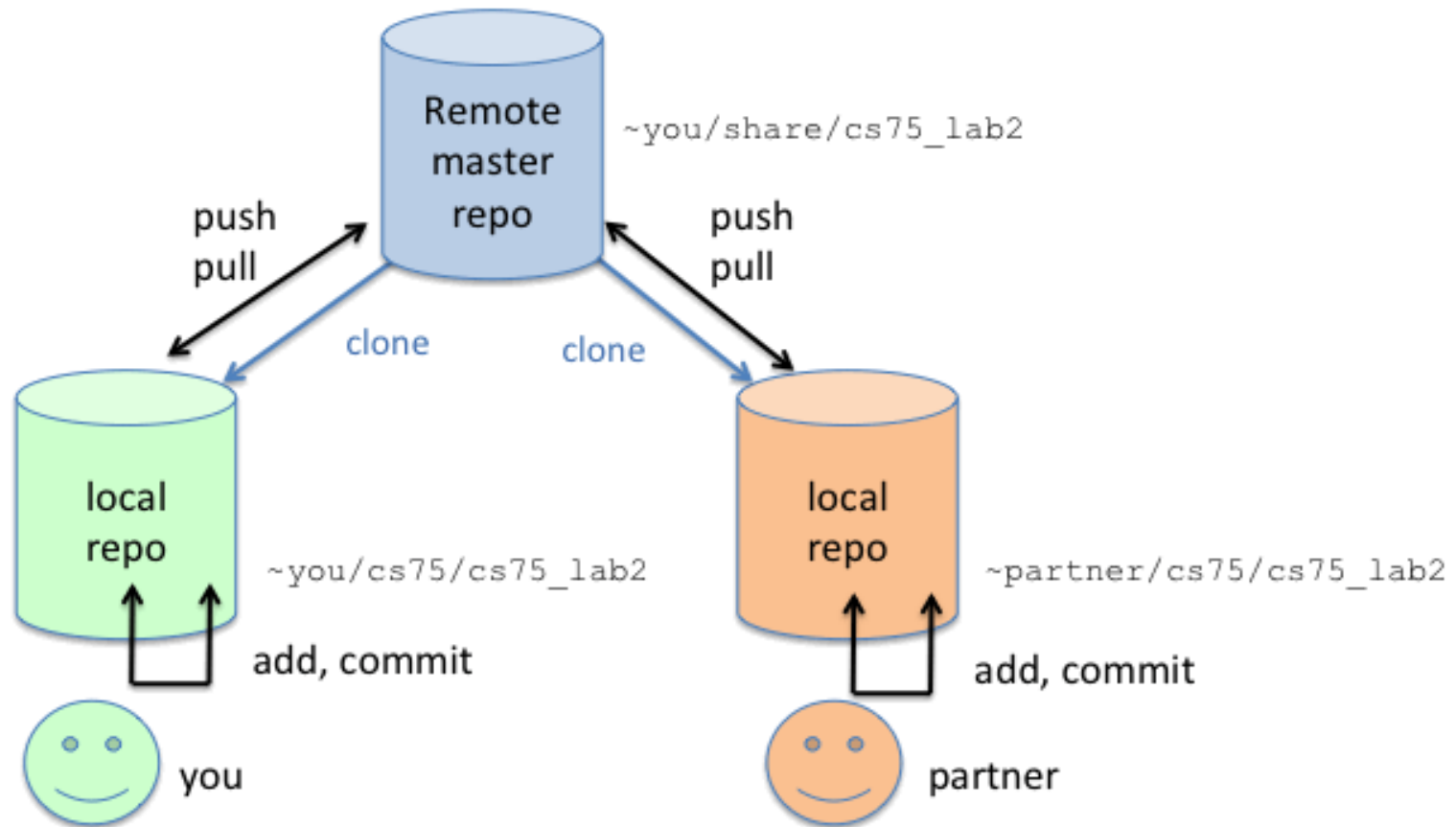
Create your new files or edit existing files in your local project directory.

- Enter `git add --all` at the command line prompt in your local project directory to add the files or changes to the repository.
- Enter `git status` to see the changes to be committed.



in repos with existing files
and folders, click the
“Add File” > “Create new File”
button to get started

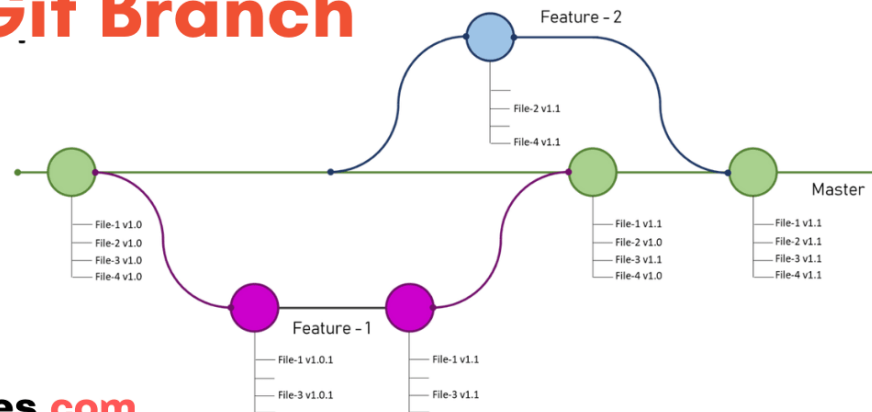
Creating a Commit



Creation of a new branch

The git branch command can be used to create a new branch. When you want to start a new feature, you create a new branch off main using git branch new_branch . Once created you can then use git checkout new_branch to switch to that branch.

How To Create a Git Branch

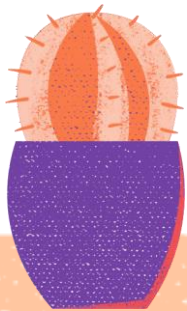


JunosNotes.com

A cluster of orange and yellow sparkles or stars in the top left corner.A stylized orange desk lamp with a purple cord hanging from the top right.

Git Commands

Learn the concept of
controlling, forking,
building repositories



Git Commands

A stack of three books with purple, red, and black covers is positioned to the left of the central text area.


Introduce yourself to Git

```
$ git config --global user.name {given name}
```

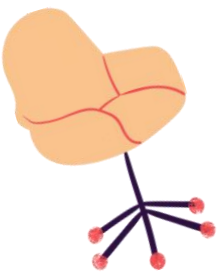

```
$ git config --global user.email {given email}
```

A small, stylized orange chair with a black base and red wheels is located at the bottom left of the slide.A small, stylized orange cup with a purple band and a red lid is positioned at the top right of the central text area.A small, stylized orange marker with a black cap is located at the bottom right of the central text area.

Git Commands

A stack of three books with purple, red, and black covers.

Run your code editor
\$ code.

A cup of coffee with a purple band and a red lid.A yellow office chair with a black base and red wheels.A yellow marker with a black cap and a red band.

Git Commands

A stack of three colored discs, one purple, one red, and one black, is positioned to the left of the central text area.


Initialize empty Git repository
\$ git init

A cup of ice cream with a purple cone and a yellow cup, topped with red and orange ice cream, is located in the top right corner.An orange chair with a black frame and red wheels is positioned in the bottom left corner.An orange marker with a black cap and a yellow body is located in the bottom right corner.

Git Commands

A stack of three colored discs, one purple, one red, and one black, with white vertical stripes.

Adding the work to staging area
\$ git add {filename}

A small orange cup with a purple band and a red lid.A small orange chair with a black base and red wheels.A small orange pencil with a black eraser and a black band.

Git Commands

A stack of three colored rings, one purple, one red, and one black, is positioned to the left of the central text.

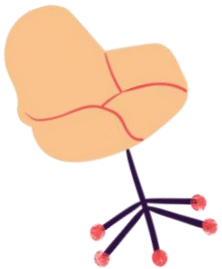
Committing from stage to final
\$ git commit

A cup of ice cream with a purple cone and a yellow cup, topped with red and orange ice cream, is located in the top right corner.An orange chair with a black frame and red wheels is positioned in the bottom left corner.An orange marker with a black cap and a black eraser is located in the bottom right corner.

Git Commands



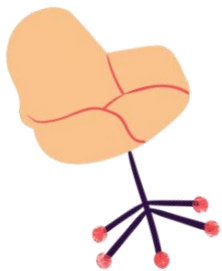
add new file to repository
\$ touch {file name}



Git Commands



If you want all files to be added to
staging area
\$ git add -A



Git Commands

A stack of three books with purple, red, and black covers is positioned to the left of the central text area.

Adding comments while inserting
commits

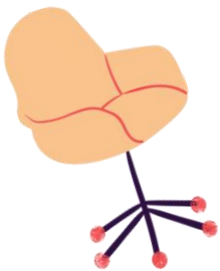
```
$ git commit -m "your comment"
```

A cup of coffee with a purple sleeve and a red lid is located in the top right corner of the slide.A glowing orange stick with a black cap is positioned in the bottom right corner of the slide.


Git Commands




Undo the work done by mistake in
staging area from a file
\$ git checkout {filename}



Git Commands

A stack of three tape reels, with the top one being purple with white stripes, the middle one red with white stripes, and the bottom one black with white stripes.

Recovery for multiple files
altogether
\$ git checkout -f

A yellow cup with a purple band around the middle and red and orange toppings on top.A yellow chair with a black base and red wheels.A yellow and orange crayon with a black eraser tip.

Git Commands

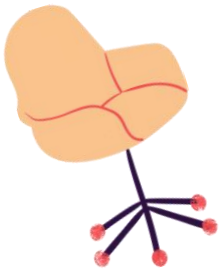


Check for complete logs

```
$ git log
```

Check for complete logs but with
numbered steps

```
$ git log -p -{mention no of steps}
```



Git Commands

A stack of three rolls of tape is positioned to the left of the central text box. The top roll is purple with white vertical stripes, the middle one is solid red, and the bottom one is black with white diagonal stripes.

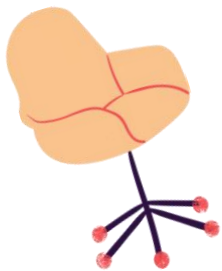
To check for changes in file
\$ git diff

A cup of ice cream with a purple band and a red cherry on top is located in the top right corner of the slide.A small, stylized orange chair with a black base and red wheels is located in the bottom left corner of the slide.A yellow highlighter with a black cap and a black eraser tip is located in the bottom right corner of the slide.

Git Commands



Auto commit all files in staging area
\$ git commit -a -m "Comment"



Git Commands

A stack of three tape reels is positioned to the left of the central board. The top reel is purple with white stripes, the middle one is red with white stripes, and the bottom one is black with white stripes.

Removing files
\$ git rm {filename}

A yellow cup with a purple band and red contents is located in the top right corner of the slide.A yellow eraser with a black band is positioned at the bottom right of the central board.

Git Commands



Branching into repository
\$ git branch {branch name}

Switching to new branch
\$ git checkout {branchname}

